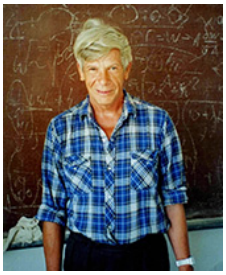

Contribution ID: **17** Type: **Session Talk**

Loop corrections to cosmological paricle creation

Tuesday, 11 October 2022 18:00 (25 minutes)

We consider dynamics of the massive minimally coupled scalar field theory in an expanding Friedmann-Lemaitre-Robertson-Walker universe. We consider the standard toy model of the conformally flat space-time where the conformal factor becomes constant at the distant past and the distant future. Employing Schwinger-Keldysh diagrammatic technique, we compute infrared loop corrections to the occupation number and anomalous quantum average of the scalar field and show that these corrections are growing with time. Using these observations, we demonstrate that the regularized stress-energy tensor at the distant future acquires substantial quantum corrections which exceed the long known tree-level contributions to the particle flux.

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